

Serial No. 10/789,966
Page 2 of 9

RECEIVED
CENTRAL FAX CENTER

FEB 12 2008

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method for upgrading software in a control plane, comprising:

a) sending notification to one or more second bridges that a first bridge is scheduled for a control plane software upgrade, thereby disturbing a first state of operation;

b) suspending VLAN registration information in the one or more second bridges while the software upgrade is taking place;

c) restoring the first state of the first bridge after the software upgrade has taken place; and

d) sending notification to the one or more second bridges of the network that the software upgrade of the first bridge has been completed;

wherein the first bridge operates in a network containing a plurality of bridges and the first bridge and the one or more of the second bridges form part of a VLAN; and

wherein the software upgrade provides enhanced bridge functions including one or more of assignment of port status, registering, deregistering and maintaining VLAN membership of the ports, and upgrading bridge programming.

2. (original) The method of claim 1 wherein the step of sending notification further comprises the first bridge sending a GVRP message.

3. (original) The method of claim 2 wherein the GVRP message uses a customizable attribute event under IEEE802.1D-1998.

Serial No. 10/789,966

Page 3 of 9

4. (original) The method of claim 1 wherein once the notification has been sent to one or more second bridges in the network, said one or more second bridges do not expect additional messages from the first bridge subsequent to notification.

5. (original) The method of claim 1 where the step of suspending VLAN registration information comprises suspending the expiration of "Leave All" timers during the upgrading at the first bridge.

6. (original) The method of claim 1 where the step of suspending VLAN registration information comprises suspending a predetermined period of time for removing VLAN registration membership until after the first bridge is upgraded.

7. (original) The method of claim 1 wherein the step of restoring the first state of the first bridge further comprises synchronizing GVRP protocol to a VLAN registration table preserved in the first bridge during the upgrade.

8. (original) The method of claim 7 wherein if a port of the first bridge is dynamically configured for a certain VLAN and is registered as a member of that VLAN, the synchronizing results in a corresponding Registrar state machine assuming an In (IN) state.

9. (original) The method of claim 7 wherein if a port of the first bridge is dynamically configured for a certain VLAN and is not registered as a member of that VLAN, synchronizing results in a corresponding Registrar state machine assuming an Empty (MT) state.

10. (original) The method of claim 7 wherein for a certain port and VLAN, the corresponding Applicant state machine assumes a Very Anxious Active Member state (VA), if at least one Registrar state machine for this VLAN associated to another active port of the same node is in an IN state.

662539-1

Serial No. 10/789,966

Page 4 of 9

11. (original) The method of claim 7 wherein for a certain port and VLAN, the corresponding Applicant state machine assumes a Very Anxious Observer state (VO), if no Registrar state machine for this VLAN associated to another active port of the same node is in an IN state.

12. (original) The method of claim 1 wherein the step of sending notification to one or more second bridges that the upgrading of the first bridge has been completed comprises sending a normal GVRP message to one or more frozen ports of said one or more second bridges.

13. (original) The method of claim 12 wherein the GVRP message uses a customizable attribute event under IEEE802.1D-1998.

14. (currently amended) A computer readable medium containing a program which, when executed, performs a method for upgrading software in a control plane, the method comprising:

a) sending notification to one or more second bridges that a first bridge is scheduled for a control plane software upgrade, thereby disturbing the first state of operation;

b) suspending VLAN registration information in the one or more second bridges while the software upgrade is taking place;

c) restoring a state of the first bridge after the software upgrade has taken place; and

d) sending notification to the one or more second bridges of the network that the software upgrade of the first bridge has been completed;

wherein the first bridge operates in a network containing a plurality of bridges and the first bridge and the one or more of the second bridges form part of a VLAN; and

Serial No. 10/789,966

Page 5 of 9

wherein the software upgrade provides enhanced bridge functions including one or more of assignment of port status, registering, deregistering and maintaining VLAN membership of the ports, and upgrading bridge programming.

15. (original) The computer readable medium of claim 14 wherein the step of sending notification further comprises the first bridge sending a GVRP message.
16. (original) The computer readable medium of claim 15 wherein the GVRP message uses a customizable attribute event under IEEE802.1D-1998.
17. (original) The computer readable medium of claim 14 wherein once the notification has been sent to one or more second bridges in the network, said one or more second bridges do not expect additional messages from the first bridge subsequent to notification.
18. (original) The computer readable medium of claim 14 wherein the step of suspending VLAN registration information comprises suspending the expiration of "Leave All" timers during the upgrading of the first bridge.
19. (original) The computer readable medium of claim 14 wherein the step of suspending VLAN registration information comprises suspending a predetermined period of time for removing VLAN registration membership until after the first bridge is upgraded.
20. (original) The computer readable medium of claim 14 wherein the step of restoring the first state of the first bridge further comprises synchronizing GVRP protocol to a VLAN registration table preserved in the first bridge during the upgrade.
21. (original) The computer readable medium of claim 20 wherein if a port of the first bridge is dynamically configured for a certain VLAN and is registered as a member of

662539-1

Serial No. 10/789,966

Page 6 of 9

that VLAN, the synchronizing results in a corresponding Registrar state machine assuming an In (IN) state.

22. (original) The computer readable medium of claim 20 wherein if a port of first bridge is dynamically configured for a certain VLAN and is not registered as a member of that VLAN, synchronizing results in a corresponding Registrar state machine assuming an Empty (MT) state.

23. (original) The computer readable medium of claim 20 wherein for a certain port and VLAN, the corresponding Applicant state machine assumes a Very Anxious Active Member state, if at least one Registrar state machine for this VLAN associated to another active port of the same node is in an IN state.

24. (original) The computer readable medium of claim 20 for a certain port and VLAN, the corresponding Applicant state machine assumes a Very Anxious Observer (VO) state, if no Registrar state machine for this VLAN associated to another active port of the same node is in an IN state.

25. (original) The computer readable medium of claim 14 wherein the step of sending notification to one or more second bridges that the upgrading of the first bridge has been completed comprises sending a normal GVRP message to one or more frozen ports of said one or more second bridges.

26. (original) The computer readable medium of claim 25 wherein the GVRP message uses a customizable attribute event under IEEE802.1D-1998.

27. (currently amended) A network bridge apparatus comprising:
a forwarding plane adapted to store VLAN membership information; and

Serial No. 10/789,966

Page 7 of 9

a control plane adapted for issuing and executing instructions that control upgrading of software of said network bridge apparatus according to said VLAN membership information including :

- a) sending notification to one or more second bridges that the first bridge is scheduled for upgrading;
- b) suspending VLAN registration information in the one or more second bridges while upgrading the first bridge;
- c) restoring a state of the first bridge prior to it being updated; and
- d) sending notification to the one or more second bridges of the network that the upgrading of the first bridge has been completed;

wherein the software upgrade provides enhanced bridge functions including one or more of assignment of port status, registering, deregistering and maintaining VLAN membership of the ports, and upgrading bridge programming.

28. (previously presented) The apparatus of claim 27 further comprising the step of restoring a state of the first bridge further comprises synchronizing GVRP protocol to a current VLAN membership tables.